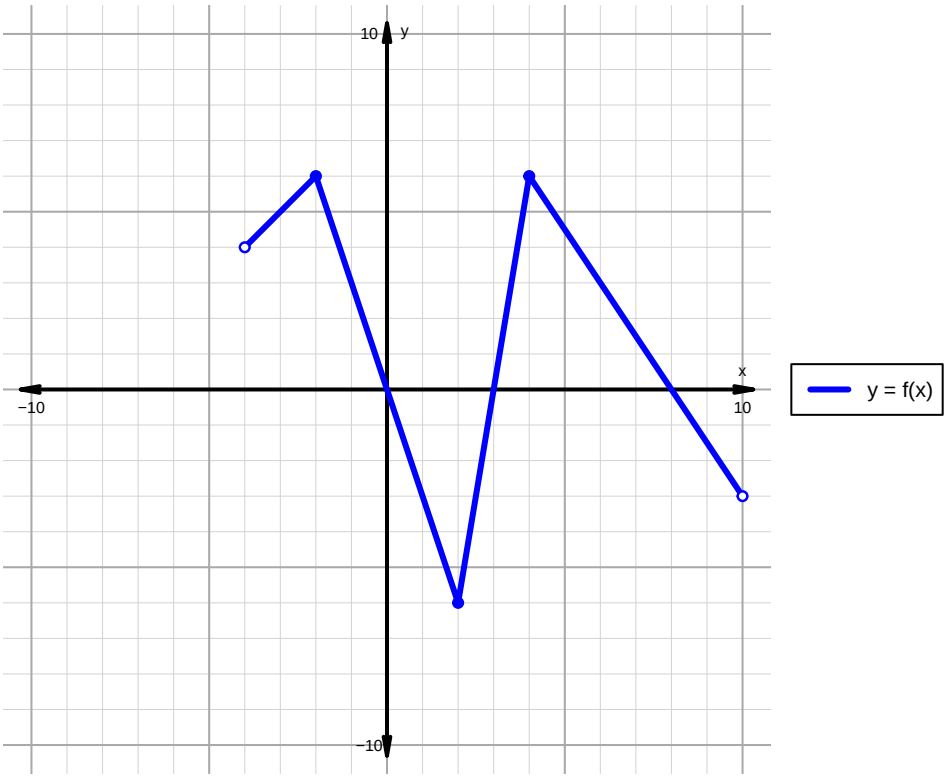
Name: Date:

## Intervals, Transformations, and Slope Solution (version 135)

1. The function $f$ is graphed below.




Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate $x$ values; this is standard.

| Feature | Where |
|---|---|
| Positive | $(-4, 0) \cup (3, 8)$ |
| Negative | $(0, 3) \cup (8, 10)$ |
| Increasing | $(-4, -2) \cup (2, 4)$ |
| Decreasing | $(-2, 2) \cup (4, 10)$ |
| Domain | $(-4, 10)$ |
| Range | $(-6, 6)$ |

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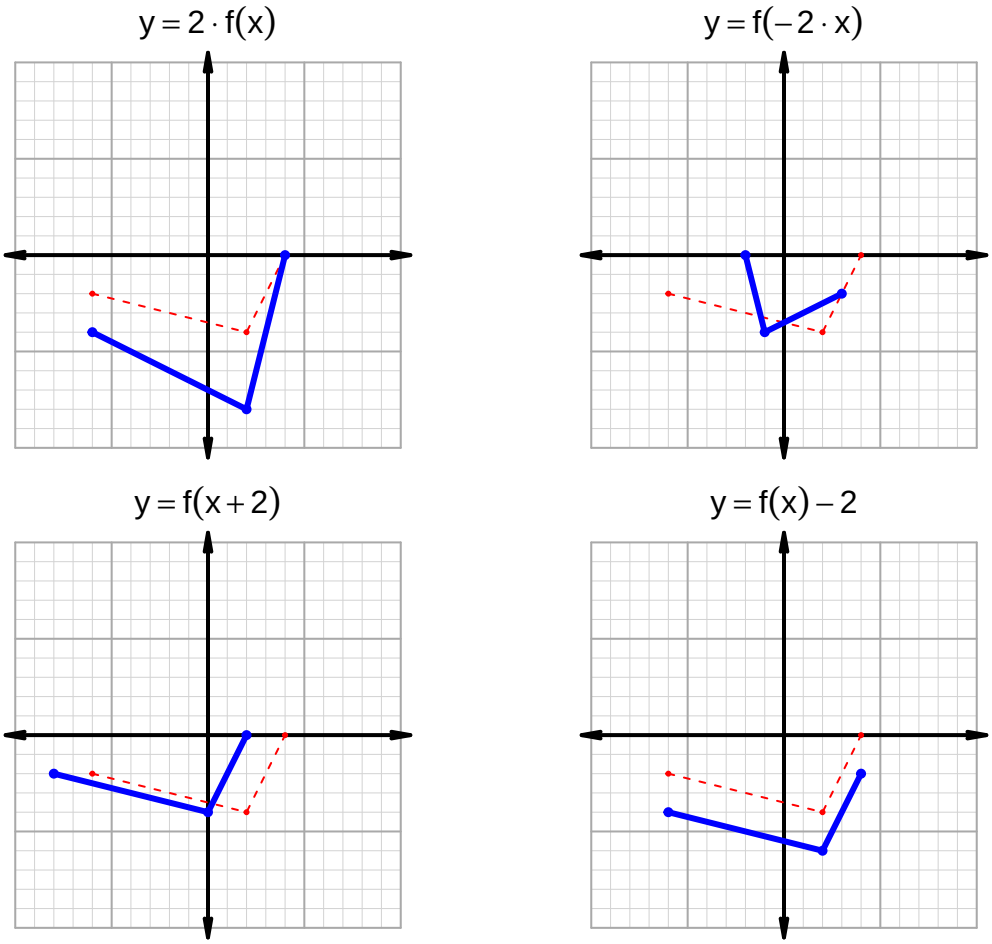
2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.




3. Let function $g$ be defined by the table below. Use the formula $\frac{g(x_2)-g(x_1)}{x_2-x_1}$ to find the average rate of change between $x_1 = 54$ and $x_2 = 74$. Express your answer as a reduced fraction.

| $x$ | $g(x)$ |
|---|---|
| 54 | 62 |
| 62 | 74 |
| 74 | 98 |
| 98 | 54 |

$\frac{f(74)-f(54)}{74-54} = \frac{98-62}{74-54} = \frac{36}{20}$

The greatest common factor of 36 and 20 is 4. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{9}{5}$$